

# Notice of Allowability

Application No.

10/635,367

Examiner

Wayne Cai

Applicant(s)

GONG ET AL.

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/9/07.
2. ☒ The allowed claim(s) is/are 1-14, 16-19, 21-42, 45-78, 80-94, 96-98 and 101-104.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

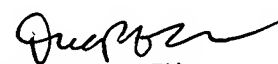
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
DUC M. NGUYEN  
SUPERVISORY PRIMARY EXAMINER  
TECHNOLOGY CENTER 2600

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Thomas Kelton (Reg. No. 54,214) on July 11, 2007.

The application has been amended as follows:

**Claim 1 (Currently Amended)** A system comprising:

a database containing antenna gain differences between multiple antenna patterns of a wireless network access node;

calculation logic for determining receive signal strength differences of a signal, said signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns; and

comparison logic for comparing said receive signal strength differences to said antenna gain differences and identifying a closest match

a database containing predicted receive signal strength information for said multiple antenna patterns of said wireless network access node;

measurement logic for measuring receive signal strengths of a signal received from said device using said multiple antenna patterns; and

comparison logic for comparing said measured receive signal strengths to said predicted receive signal strength information and identifying a closest match, wherein

said database containing predicted receive signal strength information further contains predicted receive signal strength information for multiple antenna patterns of a second wireless network access node, said measurement logic is further for measuring receive signal strengths of a signal received from said device using said multiple antenna patterns of said second wireless network access node, and said comparison logic is further for comparing said measured receive signal strengths of said second wireless network access node to said predicted receive signal strength information of said second wireless network access node and identifying a closest match.

**Claim 15 (Cancelled)**

**Claim 16 (Currently Amended)** The system of claim 1 [[15]], wherein said database containing predicted receive signal strength information associates predicted receive signal strength information in sets having a distance associated therewith.

**Claim 17 (Currently Amended)** The system of claim 1 [[15]], wherein said database containing predicted receive signal strength information associates predicted receive signal strength information in sets having a position associated therewith.

**Claim 18 (Currently Amended)** The system of claim 1 [[15]], wherein said predicted receive signal strength information is predicted using a generic propagation model.

**Claim 19 (Currently Amended)** The system of claim 1 [[15]], wherein said predicted receive signal strength information includes predicted receive signal strength information of a plurality of wireless network access nodes.

**Claim 20 (Canceled)**

**Claim 21 (Currently Amended)** The system of claim 1 [[20]], further comprising: location estimation logic for determining an estimated location of said device from an intersection point of arcs projected identified distances from said wireless network access node and said second wireless network access node.

**Claim 22 (Currently Amended)** The system of Claim 1 [[20]], further comprising: location estimation logic for determining an estimated location of said device from a midpoint of positions associated with said closest matches from said wireless network access node and said second wireless network access node.

**Claim 23 (Currently Amended)** The system of claim 1 [[20]], further comprising: location estimation logic for determining an estimated location of said device from position information stored in association with said closest match of said predicted receive signal strength information.

**Claim 24 (Currently Amended)** The system of claim 1 [[15]], wherein said measurement logic and said comparison logic for comparing said measured receive signal strengths are disposed at a centralized system in communication with a plurality of wireless network access nodes.

**Claim 25 (Currently Amended)** The system of claim 1 [[15]], wherein said measurement logic and said comparison logic for comparing said measured receive signal strengths are disposed in a distributed configuration.

**Claim 75 (Currently Amended)** A method for providing information useful in determining a position of a device within a wireless network, said method comprising: calculating antenna gain differences between multiple antenna patterns of a

Art Unit: 2617

wireless network access node;

determining receive signal strength differences of a signal, said signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns; and

comparing said receive signal strength differences to said antenna gain differences and identifying a closest match,

predicting receive signal strength information for said multiple antenna patterns of said wireless network access node;

comparing measured receive signal strengths of a signal received from said device using said multiple antenna patterns to said predicted receive signal strength information and identifying a closest match, wherein a database containing said predicted receive signal strength differences further contains predicted receive signal strength differences for multiple antenna patterns of a second wireless network access node;

measuring receive signal strengths of a signal received from said device using said multiple antenna patterns of said second wireless network access node;

comparing said measured receive signal strengths of said second wireless network access node to said predicted receive signal strength information of said second wireless network access node and identifying a closest match.

**Claim 79 (Canceled)**

**Claim 80 (Currently Amended)** The method of claim 75 ~~[[79]]~~, further comprising:

Art Unit: 2617

identifying a direction associated with said closest match of said antenna gain differences; and

identifying a distance associated with said closest match of said receive signal strengths.

**Claim 82 (Currently Amended)** The method of claim 75 [[79]], further comprising:

identifying a direction associated with said closest match of said antenna gain differences; and

identifying a position associated with said closest match of said receive signal strengths.

**Claim 83 (Currently Amended)** The method of claim 75 [[79]], further comprising:

estimating a position of said device as a function of said closest match of said antenna gain differences; and

separately estimating a position of said device as a function of said closest match of said receive signal strengths.

**Claim 85 (Currently Amended)** The method of claim 75 [[79]], further comprising:

identifying a position associated with said closest match of said antenna gain differences;

identifying a position associated with said closest match of said receive signal strengths; and

Art Unit: 2617

estimating a position of said device as a function of said position associated with said antenna gain differences and said position associated with said receive signal strengths.

**Claims 105-108 (Canceled)**

(END OF AMENDMENT)

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Cai whose telephone number is (571) 272-7798. The examiner can normally be reached on Monday - Thursday from 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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